

REMARKS

In response to the Office Action mailed on September 17, 2003, Applicant wishes to enter the following remarks for the Examiner's consideration. Applicant has amended claims 8, 21, 25 and 36-39 and added new claim 40. FIG. 3A of the drawings have been amended. Claims 1-40 are pending in the application.

1. Drawings

Figure 3A has been amended. The module labeled "Algorithm_Modification" is now labeled "Process_Modification" to correspond with the description on page 10, lines 15-17.

2. Specification

The specification has been amended to identify the trademarks "JAVA" and "CORBA".

3. Claim Objections

Claim 25 has been amended to depend from claim 24. Claim 36 has been amended as suggested by the examiner.

4. Rejection of claims under 35 USC §112, second paragraph

5. Claim 2 was rejected under 35 USC §112, second paragraph as being indefinite. Applicant respectfully traverses this rejection of the claim. Claim 2 recites the limitation "an interface servicing element that services an interface

realized by the measurement process". The term "realize" means "to make real." The interface servicing element may be written by the user to service a conceptual interface, but the interface itself is "made real by" the measurement process. This use of the term is well known to those of ordinary skill in the art. Applicant respectfully requests that this basis of rejection of claim 2 and dependent claim 3 be withdrawn and that a Notice of Allowance for this claim be mailed at the Examiner's earliest convenience.

Claims 4 and 33 are rejected under 35 USC §112, second paragraph as being indefinite because of the limitation "wherein said predetermined protocol is specified at a binary level". Applicant respectfully traverses this rejection of the claims. The examiner maintains that a protocol is generally defined as rules for binary communication. However, communication between software modules is rarely defined at the binary level. While data values may be specified at a binary level, the rest of the interface protocol is more often defined at a high level, such as a functional level, or using a high-level computer language. Most commonly, a protocol specification is not determined for a particular computer and so is not specified at a binary level. Applicant respectfully requests that this basis of rejection of claim 4 and 33 and dependent claims 5-7, 34 and 35 be withdrawn and that a Notice of Allowance for these claims be mailed at the Examiner's earliest convenience.

Claims 8 and 37 have also been rejected under 35 USC §112, second paragraph for containing the trademark "JAVA". The claims have been amended accordingly.

6. Rejection of claims under 35 USC §102(e)

7. Claims 1-4, 7-9, and 14-20 have been rejected under 35 USC §102(e) as being anticipated by Snyder (Patent No. US 6,385,552). Applicant respectfully traverses this rejection of the claims. Snyder describes a test system in which a user selects standard tests from a set of tests (1400 in Figure 3, column 3 lines 48-57 and column 17 lines 45-50) and associates data objects with those tests. See also column 5 lines 8-14. Snyder does not teach how these tests can be modified apart from changing test variables (i.e. data input to a test). In particular, the Snyder reference does not disclose that the computer programs defining these tests contains "variation points" as called for in claim 1 of the present invention. Further, the Snyder reference does disclose or teach "providing a process modification software module". In contrast Snyder teaches only the use of data objects. Snyder is concerned with being able to modify the data input to a test rather than the ability to modify the operation of the measurement process itself. Snyder is also concerned with validation of the outputs of a test. Column 5, lines 14-22 describes that associated with each test are independent variables, ranges for those variables and a "recipe" or test process. There is no method disclosed for variation of the "recipe", rather Snyder is concerned only with variation of data and parameters (column 5, lines 64-66, column 12 lines 24-51). The validation part of the test is performed by a limit checker (1500 in Figure 3) and information linking the data and tests is stored in test set database (1300 in Figure 3). This separation of the measurement process from the validation process allows validation parameters to be changed without changing the code describing the process of "recipe".

Still further, Snyder does not disclose "associating the user-defined function with the variation function", as called for in claim 1 of the present invention. An example of this is described in the specification on page 8, lines 6-14. Snyder is concerned with data modification only and provides "data objects" rather than "user defined functions". Consequently, there is nothing in the Snyder reference to suggest the association of a user-defined function with a variation function.

In Snyder, overall control of the system is provided by a test executive, (1100 in Fig. 3), which handles events generated from a menu-driven user interface (1200). Column 26, lines 6-67, describe a conventional menu system where menu selections create "events" that control the flow of operation. This allows a user to determine which tests are performed, and to associate data with those tests, but does not allow the user to vary the "recipe" for the test or to modify data or parameters part way through a test. Column 26, lines 62-67, describes how a menu selection can cause the activation of a named procedure (a component 1600). That is, control is passed to a procedure by the test executive under the control of the user interface. Once the procedure is completed, control returns to the test executive. There is no way for control to be passed from a point within an executable component (1600) to a variation module and then returned from the variation module to the executable component.

In the present invention, control flow is determined by variation points within the measurement code that allow control to be passed to a user-defined function. The user cannot move these points or add new points (page 14, lines 12-15). The Snyder reference does not teach, suggest, disclose or

otherwise anticipate the use of variation points in a computer program for a measurement process.

As an example, consider a case where it is likely that a custom sub-task may need to be performed part way through a standard test. In the present invention, the designer of the standard test might insert a variation point within the standard test and provide a single compiled code module, such as a DLL to the user that controls the complete test. The user provides a routine that is called from this variation point, performs the subtask and then returns control to the standard test. To achieve a similar result in Snyder's system, or in a block diagram system, the standard test would have to be split into two and appear as two test items to provide the same functionality. The user could specify that the first part of the standard test is performed, then the custom test and finally the second part of the standard test. However, splitting the standard test into two parts destroys its integrity and results in code fragments that are not integral tests (see page 2 line 16 to page 3 line 9). The splitting would also permit the user to run the two parts of the standard test out of order or to run one part of the test without the other.

Referring to Fig. 2 of the present invention, if the calling function 202 corresponds to Snyder's test executive (1100) and the standard measurement 204 corresponds to Snyder's test environment components (1600) or tests (1400), there is no equivalent in Snyder to the process modification 206. "Providing a process modification software module" is an element of claim 1 and is not disclosed or suggested by the Snyder reference.

Regarding claim 2, an interface realized by the measurement process is serviced by the process modification module. Snyder column 26, lines 62-

67 describes how control may be passed from the test executive to an internal procedure. This corresponds in the present invention to passing control from a calling function (202 in Fig. 2) to a standard measurement module (204 in Fig. 2). Snyder does not disclose how control may be passed from within a standard measurement function to a process modification module (206 in Fig. 2) as called for in claim 2.

Regarding claim 7, the Snyder reference teaches that a call to a standard measurement function may be initiated by a user. However, in claim 7, the call is initiated by a variation point in a standard measurement module, the user selects which process modification module will respond to the call.

With respect to claim 8, Snyder (column 20, lines 20-24) describes implementing a system as collection of software modules using Active-X DLL's (1600- in Fig. 3). However, he does not disclose the use of a process modification software module to which control is passed from a variation point within a computer program controlling a measurement process. Instead, a menu event generated by the operator via a user interface (1200 in Fig. 3) is processed by a test executive (110 in Fig. 3) and causes control to be passed to a test module. Control returns to the test executive when the test module has been completed. No method for transferring control from a test module to a process modification software module and then back to a test module is provided.

Regarding claim 14, the Snyder reference teaches the use of data objects to control data input to a measurement process. In contrast, in claim 14, the data is modified at a point within the measurement process by call to a process modification software module. For example, this enables data

measured in the first part of the process to be modified before the second part of the process is performed.

Regarding claim 17, the Snyder reference allows only control of data. If a new test device with increased functionality is to be tested, it cannot be fully configured merely by changing data values: new functionality must be added. The use of a process modification software module, as called for in 17 allows both data and functionality to change.

Regarding claim 18, the approach taught in the Snyder reference would allow the parameters of an applied test signal to be varied, but would not allow new test signals to be applied.

In light of the foregoing remarks, Applicant respectfully submits that the Snyder reference does not teach, suggest, disclose or otherwise anticipate the recitations of claim 1 and its dependent claims. Although additional arguments could be made for the patentability of each of the claims, such arguments are believed unnecessary in view of the above discussion. Applicant thus respectfully requests that this basis of rejection of the claims be withdrawn and that a Notice of Allowance for these claims be mailed at the Examiner's earliest convenience.

Claims 21-33 and claims 36-39 have been rejected under 35 USC §102 as being anticipated by Snyder (Patent No. US 6,385,552). Applicant respectfully traverses this rejection of the claims. Independent claim 21 has been amended to more clearly recite the invention. Support for the amended claim is contained in Figure 2 and in the corresponding description on page 7 line 19 to page 9 line 14. Referring to the sequence diagram in Figure 2, the

amendment clarifies the three levels of control (202, 204 and 206). Initiation of the measurement process 218 occurs at 216. At 212, control is passed to the user-defined variation function 222. At 224 control is returned to the measurement function. In contrast, the Snyder reference only has two levels of control. Referring to Figure 3 of the Snyder reference, a calling function is performed by a test executive 1100, which controls a sequence of standard tests (column 17 lines 46-51). No user-defined variation functions are suggested. The user may specify which tests are to be performed (column 5 lines 8-34) and in what order, and may also specify what data is to be used for the test (column 5 lines 15-22). However, no test is varied by passing control from the test to a user-defined variation function as called for in claim 21.

Snyder column 26 lines 62-67 discusses passing control from the test executive (the calling function) to an internal procedure. This is in contrast to claim 21 in which control is passed from a measurement procedure to a user-defined variation function. Similarly, column 29 lines 49-53 describe calling a limit checking function (1500 in Figure 3). This call is from the test execute (1100), not from a test (1400). Snyder describes a menu interpreter (column 23 line 57 to column 24 line 3). This merely provides a user interface (1200) for controlling the test executive (1100), i.e. an interface between the user and the test executive. This is not equivalent to providing a function call within a measurement process. The function call is an interface between the measurement process and the user-defined variation function.

In light of the foregoing amendment and remarks, Applicant respectfully submits that the Snyder reference does not teach, suggest, disclose or

otherwise anticipate the recitations of claims 1-4, 7-9, 14-33 and 36-39.

Applicant thus respectfully requests that this basis of rejection of the claims be withdrawn and that a Notice of Allowance for these claims be mailed at the Examiner's earliest convenience.

8. Rejection of claims under 35 USC §103(a)

9. Claims 5, 6, 10-13, 34 and 35 have been rejected under 35 USC §103(a) as being unpatentable over Snyder in view of U.S. Patent application number 2002/0026514 to Ellis et al. The Examiner acknowledges that the Snyder reference fails to teach, disclose or suggest the recitation of claims 5, 6, 10-13, 34 and 35, and relies upon the teachings of the Ellis reference to overcome this defect.

The Snyder reference is concerned with collecting test measurements; the Ellis reference is concerned with control of tools for manufacture. These are different areas of technology, and there is no suggestion in either reference to combine them. Hence there is no prima facie case for combining the references or modifying Snyder in view of Ellis. The suggestion that such a combination is beneficial uses hindsight and does not provide a motivation to combine the references.

Further, it can be seen in light of the foregoing discussion of the Snyder reference, however, that even if one were to combine the Snyder reference with Ellis reference, the result would not be the claimed invention.

Claims 5 and 6 call for the interface between the process modification software module and the measurement process to be specified according to

particular protocols. Nothing in Snyder, Ellis or a combination thereof teaches an interface between a process modification software module and the measurement process. Snyder teaches an interface between a test executive and a test. Ellis is concerned with manufacturing tools and does not provide a process modification software module or a measurement process.

Regarding claims 10-13, neither the Snyder reference nor the Ellis reference teach the use of a process modification software module. A combination of the references does not cure this defect and thus the combination fails to yield the recitations of the claims.

Regarding claims 34-35, neither the Snyder reference nor the Ellis reference teach the passing of control from a measurement process to a variation function. A combination of the references does not cure this defect and thus the combination fails to yield the recitations of the claims.

In light of the foregoing remarks, Applicant respectfully submits that the Snyder reference and Ellis references, whether considered alone or in combination fail to teach, disclose, suggest or otherwise render obvious the recitations of claims 5, 6, 10-13, 34 and 35. Applicant thus respectfully requests that this basis of rejection of the claim be withdrawn and that a Notice of Allowance for claims 5, 6, 10-13, 34 and 35 be mailed at the Examiner's earliest convenience.

New Claim

Claim 40 has been added. Claim 40 depends from claim 21. Support for claim 40 is provided by Figure 1 and the corresponding description on page 6 lines 3-19 of the specification.

In light of the foregoing amendments and remarks, applicant submits that all rejections of the claims have been overcome. The scope of the amended claim 21 is substantially the same with implicit meaning made explicit; the scope of amended claims 8, 25, 36-39 is unchanged. Allowance of claims 1-40 is respectfully requested at the Examiner's earliest convenience. Although additional arguments could be made for the patentability of each of the claims, such arguments are believed unnecessary in view of the above discussion. The undersigned wishes to make it clear that not making such arguments at this time should not be construed as a concession or admission to any statement in the Office Action.

Please contact the undersigned if you have any questions regarding this application or response.

Respectfully submitted,



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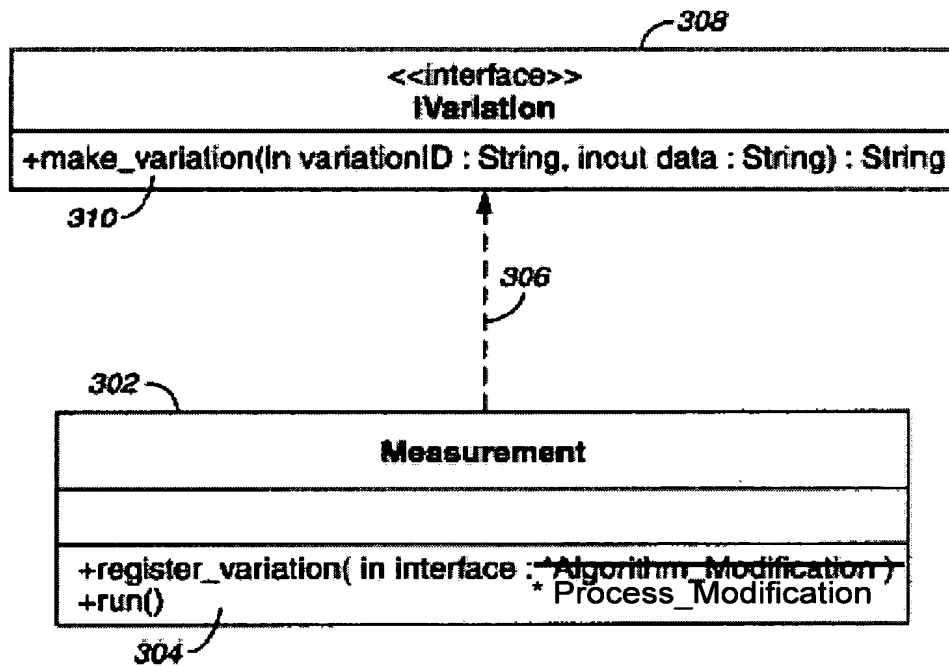


FIG. 3A

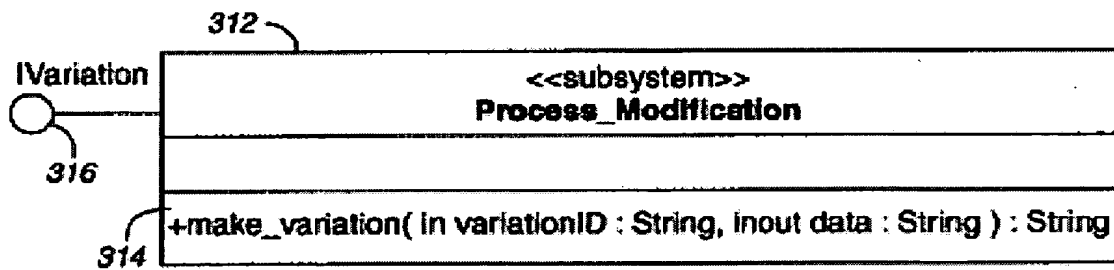


FIG. 3B